Why did the EPA update the UIC draft permits?

What are the changes from the first draft permits to the second draft permits?

Background:

The first Class III draft permit included requirements that had not been included in the uranium ISR permits that have been issued by the state primacy programs (Wyoming, Texas and Nebraska).

One of the permit requirements was for post-restoration monitoring at a line of downgradient compliance boundary wells. The EPA included this requirement in response to concerns expressed during tribal consultation meetings and a request that the EPA demonstrate with data that ISR contaminants would not impact underground sources of drinking water. The EPA's goals in the post-restoration monitoring was to provide Powertech the opportunity to have restored wellfield groundwater flow through the downgradient injection zone where natural attenuation would occur to mitigation any elevated concentrations of ISR contaminants in the restored wellfield groundwater.

The first Class III draft permit also included a requirement for

Problems with Post-Restoration Monitoring

Conceptual Site Model and Geochemical Modeling in the first Draft Permit

PART II. WELLFIELD DELINEATION AND PUMP TESTING REQUIREMENTS;

AUTHORIZATION TO COMMENCE INJECTION

B. Drilling and Logging of Wellfield Delineation Drillholes and Pump Testing Wells

1. Wellfield Delineation Drilling

a. The Permittee shall conduct delineation drilling to delineate the vertical and horizontal extent of the ore deposits targeted for ISR operations within the wellfield and develop a more detailed conceptual hydrogeologic model for wellfield design including:

i. the horizontal and vertical extent of the proposed injection intervals based on ore deposit locations;

ii. the presence and thickness of overlying confining zones; and

iii. the presence and thickness of overlying aquifer units requiring non-injection interval monitoring wells.

G. Additional Requirements to Obtain Authorization to Inject for Burdock Wellfields 6, 7 and 8

f. If the Part II, Sections G.1.c.i and G.1.c.ii column test leachates do not demonstrate an adequate decrease in ISR contaminant concentrations after passing through the columns or the up-gradient perimeter monitoring well groundwater tests show an increase in contaminant levels after passing through the columns, then the Permittee shall submit a groundwater treatment plan to the Director describing measures for preventing ISR contaminants from crossing the down-gradient aquifer exemption boundary. The plan may include geochemical modeling results demonstrating that no ISR contaminants will cross the down-gradient aquifer exemption boundary. The geochemical model should be calibrated with laboratory and/or field data.

PART IV. DOWN-GRADIENT COMPLIANCE BOUNDARY BASELINE MONITORING

AND POST-RESTORATION MONITORING PLAN

D. Laboratory Column Testing to Verify Attenuation Capability of Down-gradient Injection Zone Aquifer

e. If the Part IV, Sections D.1.b.i and D.1.b.ii column test leachates show an insufficient decrease in ISR contaminant concentrations after passing through the columns or the up-gradient perimeter monitoring well groundwater tests show an increase in contaminant levels after passing through the columns, then the Permittee shall submit a groundwater treatment plan to the Director for approval describing measures for preventing ISR contaminants from crossing the down-gradient aquifer exemption boundary. The plan shall include geochemical modeling results demonstrating that no ISR

contaminants will cross the down-gradient aquifer exemption boundary. The geochemical model shall be calibrated with laboratory and/or field data.

PART IX. MONITORING, RECORDING AND REPORTING OF RESULTS

C. Excursion Monitoring

4. Additional Monitoring of an Expanding Excursion Plume

a. In the case of an expanding excursion plume, the Director will require the installation of a minimum of three additional monitoring wells down-gradient of the excursion plume leading edge to verify the excursion plume does not have the potential to cross the aquifer exemption boundary.

b. The installation and monitoring of these new down-gradient excursion monitoring wells shall meet the following requirements:

i. New Down-gradient Excursion Monitoring Well Installation Requirements

A) The Permittee shall construct a groundwater flow model simulating the excursion to identify the maximum distance the expanding plume could have travelled down-gradient from the perimeter monitoring well ring.

B) The Permittee shall install a line of no less than three down-gradient monitoring wells in an area where groundwater has not been impacted by excursion indicators at some distance down-gradient from the leading edge of the excursion plume as determined by the groundwater flow model.

C) The distance between the down-gradient monitoring wells shall be set to ensure no greater than a 70 degree angle between adjacent down-gradient monitor wells and the nearest mutual point on the leading edge of the excursion plume as determined by the groundwater flow model.